

## Section 3

# Wetlands, Water Bodies and Watercourses

Although there are some isolated wetlands within the general project area, the wetlands, water bodies and watercourses, in the area where the improvements upstream of Lake Munson will be implemented, are hydrologically contiguous. Historically, Munson Slough was a meandering stream with open-water emergent marshes within the Lake Henrietta basin and an associated forested floodplain throughout the system leading to Lake Munson. Although channelization has altered the slough, the emergent marshes and the forested floodplain, the system presently is still a contiguous hydrologic system. This overall riparian hydrologic system consists three major historic wetland systems. These are the Lake Henrietta system, the Munson Slough system, and the Lake Munson system. A general description of these systems is provided below. A list of all plant species observed in the project area is presented in **Table 3-1**.

### *Lake Henrietta System*

The Lake Henrietta system is located almost entirely within Sections 14 and 15, Township 1 South, and Range 1 West (Tallahassee, Florida, quadrangle: USGS). Historically this system was a mixed open water–emergent marsh system that was probably inundated for 8 to 9 months per year with drydown occurring during the April-June low rainfall periods. The open water–emergent marsh wetlands were bordered by a bald cypress (*Taxodium distichum* L. C. Rich.) dominated fringe swamp in which swamp black gum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.), sweetgum (*Liquidambar styraciflua* L.), and red maple (*Acer rubrum* L.) were co-dominant species. Flow was apparent in the system during periods of high rainfall, but flow was probably greatly reduced or absent during low rainfall or drought periods.

Presently, the system exists as a hydrologically altered wetland. In response to the channelization and associated berming of Munson Slough, dramatic changes have occurred in the hydrology and vegetation of the wetlands. Presently, the Lake Henrietta system floods to a level that is comparable to the historic annual flood levels that were realized. However, duration of these highwater periods has been greatly reduced by the channelization and drainage that has occurred. Drainage has lowered water tables to levels that are less than were historically present. This has resulted in drydown, especially during low rainfall periods.

The response of the plant community to the imposed hydraulics has been dramatic. The historic open water–emergent marsh system has changed to what can best be described as mixed emergent marsh–shrub swamp in which a large number of primarily upland or transitional species have invaded. The Lake Henrietta system is presently characterized by a mixed aggregation of coastal-plain willow (*Salix caroliniana* Michx.), red maple (*Acer rubrum* L.), popcorn tree (*Sapium sebiferum* [L.] Roxb.), red mulberry (*Morus rubra* L.), and white mulberry (*Morus alba* L.). The herbaceous flora is dominated by mild water-pepper (*Polygonum hydropiperoides* Michx.), knotweed (*Polygonum caespitosum* Blume var. *longisetum* [Debr.] Stew.), dotted smartweed (*Polygonum punctatum* Ell.), maidencane (*Panicum hemitomom* Schult.), Brazilian elodea (*Egeria*

*densa* Planch.), wild taro (*Colocasia esculentum* [L.] Schott.), with floating species such as dotted duckweed (*Spirodela punctata* C. H. Thomps.), common water-hyacinth (*Eichhornia crassipes* [Mart.] Solms.), and water spangles (*Salvinia minima* Baker) being wide-spread. In areas where deposition of sediments from upstream areas has occurred, dense stands of eastern false-willow (*Baccharis halimifolia* L.), small dog-fennel thorough-wort (*Eupatorium capillifolium* [Lam.] Small), eastern gamagrass (*Tripsacum dactyloides* [L.] L.), and giant ragweed (*Ambrosia trifida* L.) dominate as well as a host of other upland ruderal species.

The cypress-dominated fringe swamp is characterized by extremely large (dbh > 1 m), canopy-sized bald cypress (*Taxodium distichum* L. C. Rich.) with few other canopy species being present. Subcanopy species include swamp black gum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.), sweetgum (*Liquidambar styraciflua* L.), red maple (*Acer rubrum* L.), titi (*Cyrilla racemiflora* L.), and wax myrtle (*Myrica cerifera* L.). The herbaceous flora is relatively sparse with savannah panic grass (*Panicum gymnocarpon* Ell.) most often being the dominant species. Sediments are grey colored and water stains are apparent primarily due to the large amount of silt that has been transported through the system. There is a large amount of trash that litters the entire basin. Extensive dumping has occurred along the east perimeter of Lake Henrietta in the area north of Eagle Road. Water quality in this area is in need of renovation.

The berm that was constructed from channelization and dredging of the slough lies west of the existing channel and has to some degree hydrologically isolated the wetlands in this area. The existing wetlands have variously been affected by development of the residential home sites that are present. All wetlands north of Fall Lane have been extensively filled, and, except for the presence of a few remnant bald cypress (*Taxodium distichum* L. C. Rich.), are dominated by a host of ruderal upland herbaceous species, including bahia grass (*Paspalum notatum* Fluegge.), Canada goldenrod (*Solidago canadensis* L.), blackberry (*Rubus flagellaris* Willd.), blackberry (*Rubus betulifolius* Small), broomsedge (*Andropogon virginicus* L.), small dog-fennel thorough-wort (*Eupatorium capillifolium* [Lam.] Small), slender fragrant-golden-rod (*Euthamia minor* [Michx.] Greene), and numerous other species. These areas are no longer classified as wetlands as determined by presence of soils or vegetation. However, some areas may still be included within the ordinary high water line.

The wetlands south of Fall Lane still exhibit periods of prolonged inundation; however, have been variously affected by residential land use practices. Several of the wetlands are characterized as having forested fringe areas dominated by large bald cypress (*Taxodium distichum* L. C. Rich.) with the central emergent marsh and shrub areas dominated by savannah panic grass (*Panicum gymnocarpon* Ell.), mild water-pepper (*Polygoum hydropiperoides* Michx.), common water-hyacinth (*Eichhornia crassipes* [Mart.] Solms.), and coastal-plain willow (*Salix caroliniana* Michx.), and most often an extensive cover of water spangles (*Salvinia minima* Baker). These wetlands are hydrologically altered experiencing water levels that are both greater than and less than those historically present. The elevated water tables are the result of restricted water flow in the undersized culverts that connect these wetlands to the channelized ditch through the berm.

### Munson Slough System

For the purposes of this discussion, the Munson Slough system refers to the channelized historic riparian-slough system extending from the southern boundary of Lake Henrietta (in Section 15), southward across Capital Circle, through Section 22, and into the delta region of Lake Munson in the north region of Section 27. Historically these areas appear to have been a slough system that flowed in response to high rainfall or high water table periods. The area most probably consisted of a series of shallow open water areas mixed with emergent marsh that were connected by an anastomosing system of well-defined shallow streams at low water with the entire system being flooded at high water. The maintenance berm that is present is located on the west side of the channelized ditch. Along the east bank, there exists a narrow band of cypress–mixed hardwood swamp, which is a remnant of the historic system. In these wetland areas, there exists a canopy that is dominated by bald cypress (*Taxodium distichum* L. C. Rich.) with scattered individuals of large water oak (*Quercus nigra* L.), swamp laurel oak (*Quercus laurifolia* Michx.), sweetgum (*Liquidambar styraciflua* L.), swamp black gum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.), red maple (*Acer rubrum* L.), and large live oak (*Quercus virginiana* Mill.) being present. The herbaceous groundcover is sparse due to the swift movement of water that occurs and the resulting deposition of sediment. In the wetter areas, savannah panic grass (*Panicum gymnocarpon* Ell.) and mild water-pepper (*Polygoum hydropiperoides* Michx.) are the most commonly occurring herb species. The understory is dominated by an extensive cover of sapling and subcanopy size water oak (*Quercus nigra* L.), sweetgum (*Liquidambar styraciflua* L.), and titi (*Cyrilla racemiflora* L.). In addition, extensive invasion of red mulberry (*Morus rubra* L.), white mulberry (*Morus alba* L.), and Chinese privet (*Ligustrum sinense* Lour.) is present, especially in higher areas that are the result of extensive sediment deposition. As in the case with the Lake Henrietta system, there is an abundance of trash scattered throughout this entire system.

Presently, this system floods in response the high rainfall events to levels probably very similar to those historically observed. However, the associated drainage that occurs as a result of the ditch causes water tables to recede below levels that were less than what was historically present.

### Lake Munson System

For purposes of this discussion, the wetlands described as associated with Lake Munson refer to those occurring within the Delta and wetlands directly adjacent to the Delta. Within the Delta, which is the area created by sediment deposition from Munson Slough, a mixed assemblage of weedy herbaceous and shrub species occur. In many areas these exist as a floating mat instead of being rooted in the substrate. Common herbaceous and grass species include southern cattail (*Typha domingensis* Pers.), alligator-weed (*Alternanthera philoxeroides* [Mart.] Griseb.), marsh pennywort (*Hydrocotyle umbellata* L.), common water-hyacinth (*Eichhornia crassipes* [Mart.] Solms.), parrot-feather (*Myriophyllum aquaticum* [Vell.] Verdc.), savannah panic grass (*Panicum gymnocarpon* Ell.), maidencane (*Panicum hemitomon* Schult.), mild water-pepper (*Polygonum hydropiperoides* Michx.), fall panic grass (*Panicum dichotomiflorum* Michx.), lizard's tail (*Saururus cernuus* L.), butterweed (*Senecio glabellus* Poir.), pickerelweed (*Pontederia cordata* L.), and climbing hempweed (*Mikania scandens* [L.] Willd.). Various shrub and sapling species are present, which include black willow (*Salix nigra* Marsh.), coastal-plain willow (*Salix caroliniana* Michx.), elderberry (*Sambucus canadensis* L.), red maple (*Acer rubrum* L.), and common buttonbush (*Cephalanthus occidentalis* L.). The forested wetlands that are associated with the shoreline of Lake Munson are dominated by

bald cypress (*Taxodium distichum* L. C. Rich.), pond cypress (*Taxodium ascendens* Brongn.), swamp black gum (*Nyssa sylvatica* Marsh. var. *biflora* [Walt.] Sarg.), water-tupelo (*Nyssa aquatica* L.), and red maple (*Acer rubrum* L.). In general, these trees are extremely large and in good health. The understory is dominated by a mixed assemblage of shrubs, herbs, grasses, sedges, and rushes which include Virginia willow (*Itea virginica* L.), sweet pepperbush (*Clethra alnifolia* L.), common buttonbush (*Cephalanthus occidentalis* L.), wax myrtle (*Myrica cerifera* L.), cardinal flower (*Lobelia cardinalis* L.), prairie iris (*Iris hexagona* Walt.), spider-lily (*Hymenocallis* species), soft rush (*Juncus effusus* L.), hop sedge (*Carex lupulina* Muhl. ex Willd.), false nettle (*Boehmeria cylindrica* [L.] Sw.), savannah panic grass (*Panicum gymnocarpon* Ell.), loose-flower water-willow (*Justicia ovata* [Walt.] Lindau), Virginia chain fern (*Woodwardia virginica* [L.] Smith), sensitive fern (*Onoclea sensibilis* L.), dimorphic chain fern (*Woodwardia areolata* [L.] Moore), royal fern (*Osmunda regalis*\* L.), cinnamon fern (*Osmunda cinnamomea*\* L.), and poison ivy (*Toxicodendron radicans* [L.] Kuntze). Despite the presence of garbage and the sedimentation that has occurred, these wetlands appear to experience water table fluctuations in the general range in which these systems historically developed.

### Adjacent Uplands

Almost without exception the Lake Henrietta system, Munson Slough system, and Lake Munson system are bordered by a mesic mixed hardwood hammock system that forms a band on the slopes between these wetlands and the adjacent Sandhill communities. The hardwood communities as described are similar to those described by Platt and Schwartz (1990) as temperate hardwood forests or, more specifically, defined by Clewell (1986) as mesic hardwood hammocks and pine-oak ruderal assemblages.

The dominant canopy trees are very large individuals of live oak (*Quercus virginiana* Mill.). Water oak (*Quercus nigra* L.) is the dominant subcanopy species extending throughout both the mesic slopes and adjacent wetland systems. Additional canopy species include laurel oak (*Quercus hemisphaerica* Bartr.), sweetgum (*Liquidambar styraciflua* L.), swamp tupelo (*Nyssa sylvatica* Marsh. var. *sylvatica*), loblolly pine (*Pinus taeda* L.), spruce pine (*Pinus glabra* Walt.), pignut hickory (*Carya glabra* [Mill.] Sweet), and southern magnolia (*Magnolia grandiflora* L.). The understory, in addition to being dominated by water oak (*Quercus nigra* L.), has numerous individuals of sweetgum (*Liquidambar styraciflua* L.), sparkleberry (*Vaccinium arboreum* Marsh.), Elliott's blueberry (*Vaccinium elliotii* [Chapm.] Small), horse sugar (*Symplocos tinctoria* [L.] L'Her.), witch hazel (*Hamamelis virginiana* L.), flowering dogwood (*Cornus florida* L.), persimmon (*Diospyros virginiana* L.), small-fruited pawpaw (*Asimina parviflora* [Michx.] Dunal), deerberry (*Vaccinium stamineum* L.), and sassafras (*Sassafras albidum* [Nutt.] Nees). The groundcover is usually very sparse with few herbs; however, litter is abundant.

Contained within this band of mesic hardwoods are several sinkholes that have prolonged periods of inundation. These generally are dominated by coastal-plain willow (*Salix caroliniana* Michx.), common buttonbush (*Cephalanthus occidentalis* L.), red maple (*Acer rubrum* L.), and titi (*Cyrilla racemiflora* L.) with transition zones dominated by sparkleberry (*Vaccinium arboreum* Marsh.) and Elliott's blueberry (*Vaccinium elliotii* [Chapm.] Small). Almost all sinkhole areas encountered have been used extensively for trash and garbage disposal.